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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,424	09/27/2006	Fan Lu	55340-311395	8168
23342	7590	11/12/2009	EXAMINER	
KILPATRICK STOCKTON LLP 1001 WEST FOURTH STREET WINSTON-SALEM, NC 27101				GOUGH, TIFFANY MAUREEN
ART UNIT		PAPER NUMBER		
1657				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,424	LU ET AL.	
	Examiner	Art Unit	
	TIFFANY M. GOUGH	1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 July 2009.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 6-21,41-46,52 and 54-68 is/are pending in the application.
- 4a) Of the above claim(s) 6-21,45,46,52 and 54-66 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 41-44,52,67,68 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Applicant's response filed 7/17/2009 has been received and entered into the case. Claims 6-21, 41-46, 52, 54-68 are pending. Claims 6-21, 45-46, 54-66 are withdrawn from consideration.

Claims 41-44, 52, 67, 68 have been considered on the merits.

All arguments and amendments have been considered.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

Claim 68 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants claim 68 is drawn to a food product comprising colonies of *Nostoc* which comprise phycoproteins in amounts greater than are found in *Nostoc* colonies harvested from nature. This claim introduces new matter, which is not described in the specification as originally filed. Applicant states on p.11 of the specification that cultures contain greater amounts of phycobiliproteins than those in nature. Applicant does not have support for any phycoprotein, only phycobiliproteins. Therefore, “...phycoproteins...” changes the scope of the claims and applicants invention for which no support is provided. **This is a new matter rejection.**

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 41,52 are rejected under 35 U.S.C. 102(b) as being anticipated by Qiu et al. (J. of Applied Phycology, 2002).

Applicant claims a food product comprising colonies of *Nostoc*.

Qiu teach *Nostoc* (Ge-Xian-Mi) in a food product (p. 424, 2nd column) as well as colonies of size greater than 0.1 mm and about 10 mm (p.424, Geographical distribution and habitats section). They further teach that edible *N. commune* is of the same morphology and habitats as Ge-Xian-Mi (p. 427, Taxonomic identity of Ge-Xian-Mi)

Thus, the reference anticipates the claimed subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 41-44,52,67 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hori et al. (*Plant Foods for Human Nutrition*, 1994) in view of each of Li et al. (*Euro. J. Phycology*, 2004) and Huang et al (*J. Phycology*, 1998).

Applicant claims a food product comprising colonies of *Nostoc*.

Hori teach soup and salad comprising *Nostoc commune*, i.e. a food product comprising *Nostoc commune* (Introduction, p. 63). Hori also teach benefits of using *Nostoc commune* in food. They teach that *N. commune* is high in dietary fiber, has cholesterol lowering effects, prevents the increase of serum cholesterol (p. 67, discussion section and therefore has significant hypocholesterolemic effects (p.66 3rd full paragraph).

Hori does not teach the claimed colony size.

Li et al. (*Euro. J. Phycology*, 2004) teach *Nostoc sphaeroides* (also known as *N. commune*) to be an edible cyanobacterium which grows to colony sizes ranging from greater than 0.1mm to about 10mm (see introduction, materials and methods section, Table 1).

The above references do not teach the colonies of *Nostoc* to comprise rhamnose and fucose.

Art Unit: 1657

Huang teach a biologically pure culture of *Nostoc* which when cultured in the laboratory comprises the monosaccharides rhamnose and fucose. Huang also teach *Nostoc* to be edible and can be use in food products (abstract, p.963, 1st and 2nd full paragraphs, p. 964, results section, Tables 1,2, 5, p. 967, last sentence).

Thus, one of ordinary skill in the art would be motivated to use the *Nostoc* cultures of Huang in a food product because Huang teaches that polysaccharides play an important role in colony morphogenesis as well as the cultures practical applications, i.e. in food products. Further, Huang teach that *Nostoc* is known to be an edible species of cyanobacteria and it's polysaccharide production suggests they can be used as thickening agents in food products.

None of the above references teach the claimed amounts of *Nostoc* added to a food product.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add any desired amount of *Nostoc* to a food product and such amount would not lend patentability. Adjusting such a result effective variable as an amount added to food is practiced as routine optimization in this art.

Response to Arguments

Applicant's arguments filed 7/17/2009 have been fully considered but they are not persuasive. In response to the previous 102(b) rejections of record over Hori and Qui, applicant argues that Hori and Qiu do not teach a biologically pure culture of *Nostoc* according to an embodiment of the invention.

It is the examiner's position that according to applicants definition of a "biologically pure culture", one would not say that the cultures disclosed in the art are not biologically pure. For example, Hori teaches a culture grown on a university campus which has harvested and washed. Hori's culture meets applicants definition of "biologically pure" wherein the culture is "substantially free of contaminants and other organisms." Qiu also teach harvesting a culture which has been purified. Applicant argues that the colonies may contain contaminants, however such a fact is not known and if the colonies did contain any contaminants there is no measurement of how much, thus the colonies may also be "substantially free of contaminants" as defined by applicant. Applicant additionally argues a food product produced from *Nostoc* colonies. Applicant does not claim a product produced from the colonies.

In response to the above rejection of record, applicant also argues the issue of a "biologically pure culture." The Examiners arguments provided above also correspond to applicants arguments regarding the 103 rejection. Applicant also argues the species of *Nostoc commune* vs. *Nostoc sphaeroides*. Claim 41 is drawn to *Nostoc* only.

The above rejection under 35 USC 103(a) now contains a new reference, Huang et al., which was used in response to newly added claim 67. It is the Examiner's position that the combination of references are relied upon for the teachings of obtaining a biologically pure culture, known to grow to the claimed size, which are also disclosed as being edible and used in food products. Absent evidence to the contrary, it would be well within the purview of one of ordinary skill in the art to either isolate and purify a culture of *Nostoc*, specifically *N. commune*, (Hori and Qui) or grow a biologically pure culture of *Nostoc* as disclosed by Huang, which is well known in the art to be edible and add such culture to a food product. Further, the amounts added would be optimizable especially to one of ordinary skill in the art depending on the food product to which it is added.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1657

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIFFANY M. GOUGH whose telephone number is (571)272-0697. The examiner can normally be reached on M-F 8-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Majunath Rao can be reached on 571-272-0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ralph Gitomer/
Primary Examiner, Art Unit 1657

/Tiffany M Gough/
Examiner, Art Unit 1657